

## Decision Support Systems (DSS)

### Sheet (2)

3<sup>rd</sup> Year students

1) What were the two main streams of research that led to the evolution and development of the concept of Decision Support Systems?

- ☒ A). Theoretical studies of organizational decision making and technical work on interactive computer systems.
  - ☐ B). Theoretical studies of organizational behavior and technical work on relational data **bases**.
  - ☐ C). Empirical studies of graphical displays and technical work on **artificial** intelligence.
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2) What should be a major characteristic of a DSS?

- ☐ A). Automates decision making.
  - ☐ B). Includes a spreadsheet model.
  - ☒ C). Responds quickly to the changing needs of decision makers.
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3) In which of Steven Alter's categories of DSS would you place data warehouses?

- ☐ A). Analysis Information systems.
  - ☐ B). Accounting and financial models.
  - ☒ C). Data analysis systems.
  - ☐ D). Suggestion models.
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4) What would one conclude after visiting DSS-**related** sites on the World-Wide Web?

- ☐ A). There is limited support for DSS researchers and practitioners on the World-Wide Web.
  - ☒ B). The Web is where the DSS research and development action is occurring.
  - ☐ C). The quality and value of DSS-related Web sites is outstanding.
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5) What is a data warehouse?

- ☐ A). A database application that searches for hidden patterns in a data base.
  - ☒ B). A database designed to support decision making in organizations. It is batch updated and structured for rapid on-line queries and managerial summaries.
  - ☐ C). An interactive computer based system which helps decision makers utilize data and models to identify and solve problems and make decisions.
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7) What type of computerized system records current information and emphasizes data integrity and consistency?

- ☐ A). Data Analysis System.
  - ☐ B). File Drawer System
  - ☒ C). Transaction Processing System
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8) What is the most important component of a Decision Support System?

- ☐ A). Architecture and network design.
  - ☐ B). Database.
  - ☐ C). Mathematical models and analytical tools.
  - ☒ D). User interface.
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9) Which of the following web sites provides organized information on a wide variety of Decision Support Systems topics?

- ☒ A). <http://DSSResources.COM>
- ☐ B). <http://www.usatoday.com>
- ☐ C). <http://www.zoogdisney.com>
- ☐ D). <http://www.hotmail.com>

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10) What category of software technology enables analysts, **managers** and executives to gain insight into data through fast, consistent, interactive access to a wide variety of possible views of information that has been transformed from raw data to reflect the real dimensionality of the enterprise as understood by the user.

- ☐ A). Data Warehouse software.
  - ☒ B). On-line Analytical Processing (OLAP) software.
  - ☐ C). On-line Transaction Processing (OLTP) software.
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### Completion

1. A(n) \_\_\_\_\_ problem is one for which an algorithm exists which can give an optimal or near-optimal solution in finite time. Answer (structured)
  2. A(n) \_\_\_\_\_ problem is one for which no algorithm exists which can give an optimal or near-optimal solution in finite time (often due to unknowns and variability). Answer (unstructured)
  3. A(n) \_\_\_\_\_ problem is one for which **partial** solutions may be achieved, but for which variability and unknowns may still change the expected outcomes. Answer (semi-structured)
  4. DSS stands for \_\_\_\_\_. Answer (decision support systems)
  5. ES stands for \_\_\_\_\_. Answer (expert systems)
  6. AI stands for \_\_\_\_\_. Answer (artificial intelligence)
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1)What is an expert system?

Attempts to mimic human experts' problem solving

Is a problem solving computer package that apply reasoning methodologies in a specific domain.

2) What are data mining and business intelligence?

Data mining uses a combination of artificial intelligence and statistical analysis to analyze data and discover useful patterns that are “hidden” there. The techniques of data mining are decision trees, Neural networks and rule induction.

Business intelligence includes collecting and refining information from many sources, analyzing and presenting the information in useful ways so people can make better business decisions.

3) Define Data, information , knowledge, meta data and give an example.  
4) List and describe four reasons why information systems are so important for business today?

- a) Increasing complexity of decisions
- b) Increasing availability of computerized support
- c) Increasing usability of computers
- d) Complexity of organizations structure.

5) What are the key management challenges involved in building, operating and maintaining information systems today?

Answer:

- The information systems investment challenge: How can organization obtain business value from their information system?
- The strategic business challenge: What complementary assets are needed to use information technology effectively?
- The globalization challenge: How can firm understand the business and system requirements of a global economic environment?
- The information technology infrastructure challenge: How can organization develop an information technology infrastructure that can support their goals when business conditions and technologies are changing so rapidly?
- Ethic and security: The responsibility and control challenge: How can organization ensure that their information systems are used in an ethically and socially responsible.

6) List and briefly describe the major types of system in organization?

Answer:

- Transaction Processing Systems (TPS): are the basic business systems that serve the operational level of the organization. And it is also a computerized system that performs and records the daily routine transactions necessary to conduct business.
- Management Information Systems (MIS): serve the management level of the organization, providing managers with reports and often-online access to the organization's current performance and historical records and primarily serve the functions of planning, controlling, and decision-making.
- Decision-Support System (DSS): also serve the management level or the organization. DSS help managers make decisions that are unique, rapidly changing, and not easily specified in advance.
- Executive Support System (ESS): serve the strategic level of the organization. They address nonroutine decisions requiring judgment, evaluation, and insight because there is no agreed on procedure for arriving at a solution.

7) Define the term *model*.

8) State the different types of models and which one MIS focuses on?

9) Define a system, give examples?

A system is .....

There are two types of systems in organizations: closed systems and open systems. An open system interacts with its environment through giving and receiving information. Closed systems are closed off from the outside environment, and all interaction and knowledge is transmitted within the closed system only. In practical world there are no systems that are absolutely closed. Systems that have relatively limited interaction with its environment are, therefore, considered closed systems

For example, the a *research-and-development* (R&D) department of a company may have much less interaction with people outside the department as compared to marketing department. Therefore, we may consider the R&D department organization as a closed system, and *Marketing department* organization as an open system.

A *production line* is an example of a closed system within an organization. The daily work that takes place on production or assembly lines can be insulated from outside factors such as day-to-day meetings between upper-level executives, or information from other similar, competing production lines.

10) How to identify the environment? environmental elements can be what?

11) How to assess the performance of an organization?